

Orientalmotor

**NEW
PRODUCTS**

RoHS RoHS-Compliant

Watertight, Dust-Resistant Motors

FPW Series



RoHS RoHS-Compliant

Watertight, Dust-Resistant Motors

FPW Series



Induction Type



The **FPW** Series are geared motors which conform to the IEC standard IP67 (Recognized by UL). They are ideal for applications where they are splashed with water.

These watertight motors are available in 25 W, 40 W, 60 W and 90 W models, and conform to the RoHS Directive.



Features

● Watertight and Dust-Resistant Performance IP67

The **FPW** Series motors are watertight, dust-resistant geared induction motors which conform to the IEC standard IP67.

They can be used where they are splashed with water.

*Not available for use under high pressure jets of water or immersion of water

IP67: The letters "IP" stand for "Ingress Protection" and are followed by two numerical digits which indicate degrees of protection against solid objects and moisture. Specified with IEC60529 and IEC60034-5.

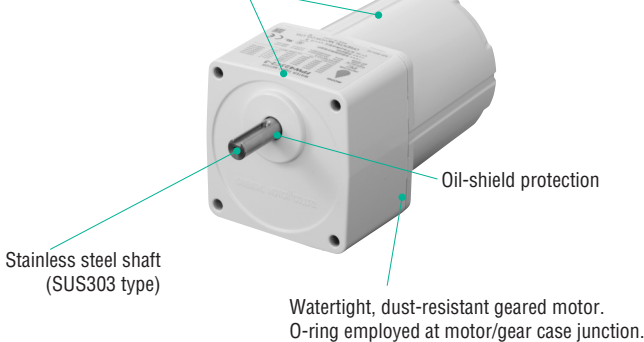
FPW Series IP67 protection are UL recognized (UL File No.E166348).

● Superb Anti-Corrosion Properties

High corrosion resistance is achieved through special anti-corrosive coating and re-examination of shaft material [stainless steel (SUS303 type)].

● Designed and Constructed for Dust and Water-Resistance

Special anti-corrosive coating



● Conform to Safety Standards

The **FPW** Series is recognized by UL/CSA standards and conforms to EN standards. CE marking is used in accordance with the low voltage directive. These motors are also certified under the China Compulsory Certification (CCC) System.

● **RoHS** RoHS-Compliant

The **FPW** Series conforms to the RoHS Directive that prohibits the use of six chemical substances including lead and cadmium.

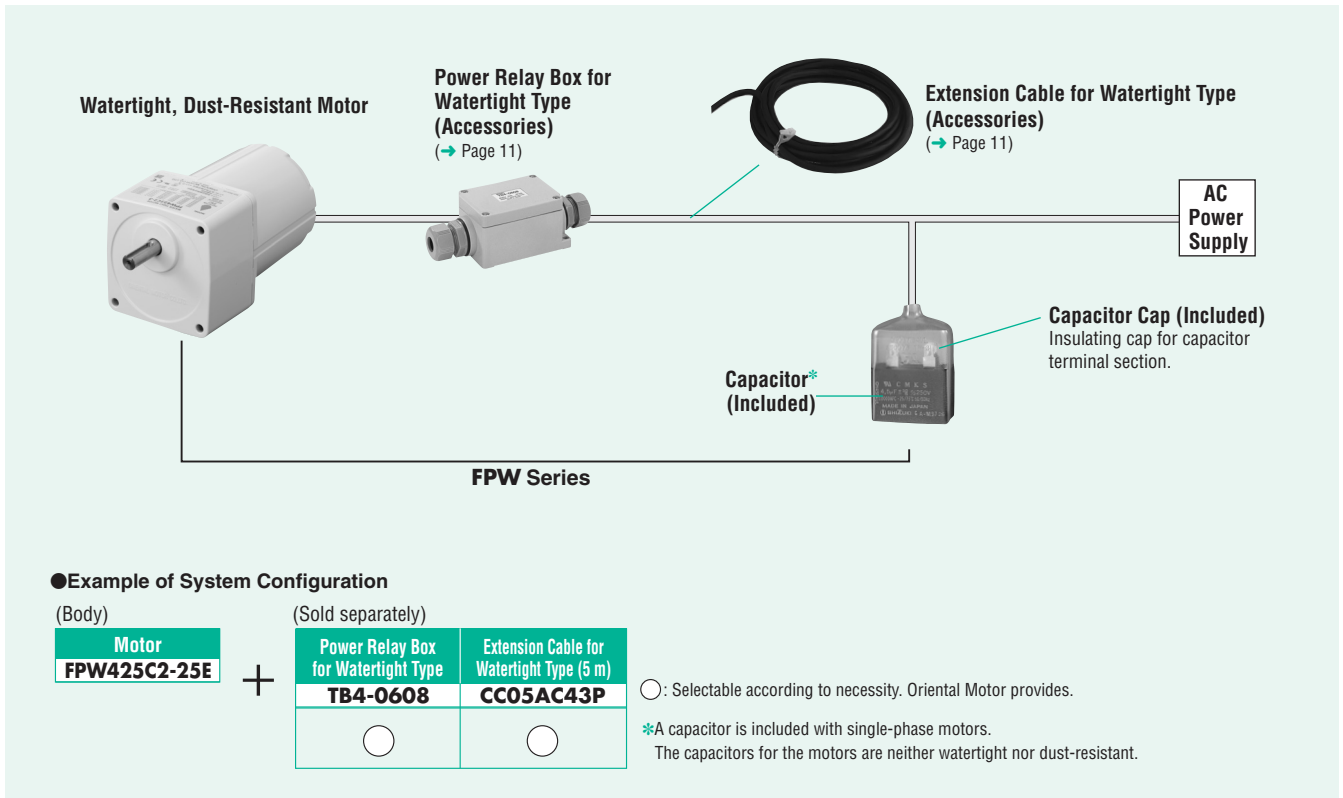
RoHS (Restriction of Hazardous Substances) Directive:
 Directive on restriction of the use of certain hazardous substances in electrical and electronic equipment (2002/95/EC).
 The RoHS Directive prohibits the use of six chemical substances in electrical and electronic products sold in the E.U. member countries on or after July 1, 2006. The six controlled substances are: lead, hexavalent chromium, cadmium, mercury and two specific brominated flame-retardants (PBB and PBDE).

Safety Standards and CE Marking

Standards	Certification Body	Standards File No.	CE Marking
UL 1004 UL 2111	UL	E64197	Low Voltage Directives
CSA C22.2 No.100 CSA C22.2 No.77			
EN 60034-1 EN 60034-5 IEC 60664-1	Conform to EN/IEC Standards		
GB 12350	CQC	2006010401173413 (Single-Phase 25 W – 90 W) 2006010401173412 (Three-Phase 25 W – 90 W)	

● When the motor is approved under various standards, the model name on the nameplate is the approved model name.

System Configuration



●The system configuration shown above is an example. Other configurations are available.

Product Number Code

FPW 4 25 C 2 - 15 E

① ② ③ ④ ⑤ ⑥ ⑦

①	Series	FPW: FPW Series
②	Motor Frame Size	4: 80 mm 5: 90 mm 6: 104 mm
③	Output Power (W)	(Example) 25: 25 W
④	Power Supply Voltage	A: Single-Phase 100 VAC, 110/115 VAC C: Single-Phase 200 VAC, 220/230 VAC S: Three-Phase 200/220/230 VAC
⑤	2: RoHS-Compliant	
⑥	Gear Ratio	
⑦	Included Capacitor	J: For Single-Phase 100 VAC, 200 VAC U: For Single-Phase 110/115 VAC E: For Single-Phase 220/230 VAC

● The **J**, **U** and **E** at the end of the model name indicate that the unit includes a capacitor. These letters are not listed on the motor nameplate.

When the motor is approved under various standards, the model name on the nameplate is the approved model name.

(Example) Model: **FPW425C2-15E**

→ Motor nameplate and product approved under various safety standards: **FPW425C2-15**

Product Line **RoHS**

Output Power	Power Supply Voltage	Model	Gear Ratio
25 W	Single-Phase 100 VAC Single-Phase 110/115 VAC	FPW425A2-□J FPW425A2-□U	3, 3.6, 5, 6, 7.5, 9, 12.5, 15, 18, 25, 30, 36, 50, 60, 75, 90, 100, 120, 150, 180
	Single-Phase 200 VAC Single-Phase 220/230 VAC	FPW425C2-□J FPW425C2-□E	3, 3.6, 5, 6, 7.5, 9, 12.5, 15, 18, 25, 30, 36, 50, 60, 75, 90, 100, 120, 150, 180
	Three-Phase 200/220/230 VAC	FPW425S2-□	3, 3.6, 5, 6, 7.5, 9, 12.5, 15, 18, 25, 30, 36, 50, 60, 75, 90, 100, 120, 150, 180
40 W	Single-Phase 100 VAC Single-Phase 110/115 VAC	FPW540A2-□J FPW540A2-□U	3, 3.6, 5, 6, 7.5, 9, 12.5, 15, 18, 25, 30, 36, 50, 60, 75, 90, 100, 120, 150, 180
	Single-Phase 200 VAC Single-Phase 220/230 VAC	FPW540C2-□J FPW540C2-□E	3, 3.6, 5, 6, 7.5, 9, 12.5, 15, 18, 25, 30, 36, 50, 60, 75, 90, 100, 120, 150, 180
	Three-Phase 200/220/230 VAC	FPW540S2-□	3, 3.6, 5, 6, 7.5, 9, 12.5, 15, 18, 25, 30, 36, 50, 60, 75, 90, 100, 120, 150, 180
60 W	Single-Phase 100 VAC Single-Phase 110/115 VAC	FPW560A2-□J FPW560A2-□U	3, 3.6, 5, 6, 7.5, 9, 12.5, 15, 18, 25, 30, 36, 50, 60, 75, 90, 100, 120, 150, 180
	Single-Phase 200 VAC Single-Phase 220/230 VAC	FPW560C2-□J FPW560C2-□E	3, 3.6, 5, 6, 7.5, 9, 12.5, 15, 18, 25, 30, 36, 50, 60, 75, 90, 100, 120, 150, 180
	Three-Phase 200/220/230 VAC	FPW560S2-□	3, 3.6, 5, 6, 7.5, 9, 12.5, 15, 18, 25, 30, 36, 50, 60, 75, 90, 100, 120, 150, 180
90 W	Single-Phase 100 VAC Single-Phase 110/115 VAC	FPW690A2-□J FPW690A2-□U	3, 3.6, 5, 6, 7.5, 9, 12.5, 15, 18, 25, 30, 36, 50, 60, 75, 90, 100, 120, 150, 180
	Single-Phase 200 VAC Single-Phase 220/230 VAC	FPW690C2-□J FPW690C2-□E	3, 3.6, 5, 6, 7.5, 9, 12.5, 15, 18, 25, 30, 36, 50, 60, 75, 90, 100, 120, 150, 180
	Three-Phase 200/220/230 VAC	FPW690S2-□	3, 3.6, 5, 6, 7.5, 9, 12.5, 15, 18, 25, 30, 36, 50, 60, 75, 90, 100, 120, 150, 180

● Enter the gear ratio in the box (□) within the model name.

Specifications – Continuous Rating



Model	Output Power W	Voltage VAC	Frequency Hz	Current A	Starting Torque mN·m	Rated Torque mN·m	Rated Speed r/min	Capacitor μF
TP FPW425A2-□J	25	Single-Phase 100	50	0.51	130	205	1200	8.0
			60	0.52	120	170	1450	
TP FPW425A2-□U	25	Single-Phase 110	60	0.46	120	170	1450	6.5
		Single-Phase 115						
TP FPW425C2-□J	25	Single-Phase 200	50	0.26	120	205	1200	2.0
			60			170	1450	
TP FPW425C2-□E	25	Single-Phase 220	50	0.27	110	205	1200	1.5
			60	0.23		170	1450	
		Single-Phase 230	50	0.27	120	205	1200	
			60	0.23		170	1450	
TP FPW425S2-□	25	Three-Phase 200	50	0.23	240	190	1300	-
		Three-Phase 220	60	0.21	160	160	1600	
			Three-Phase 230	60				
TP FPW540A2-□J	40	Single-Phase 100	50	0.76	200	315	1250	11
			60	0.74		260	1500	
TP FPW540A2-□U	40	Single-Phase 110	60	0.68	200	260	1500	9.0
		Single-Phase 115		0.67				
TP FPW540C2-□J	40	Single-Phase 200	50	0.39	200	315	1250	3.0
			60	0.40		260	1500	
TP FPW540C2-□E	40	Single-Phase 220	50	0.39	200	315	1250	2.3
			60	0.35		260	1500	
		Single-Phase 230	50	0.39		300	1300	
			60	0.34		260	1500	
TP FPW540S2-□	40	Three-Phase 200	50	0.32	400	300	1300	-
		Three-Phase 220	60	0.30	260	260	1600	
			Three-Phase 230	60				
TP FPW560A2-□J	60	Single-Phase 100	50	1.17	300	490	1200	18
			60	1.16		405	1450	
TP FPW560A2-□U	60	Single-Phase 110	60	1.04	300	405	1450	12
		Single-Phase 115		1.02				
TP FPW560C2-□J	60	Single-Phase 200	50	0.54	300	490	1200	4.0
			60			405	1450	
TP FPW560C2-□E	55	Single-Phase 220	50	0.52	300	430	1250	3.0
	60		60	0.48		405	1450	
	55	Single-Phase 230	50	0.51		430	1250	
			60	0.47		405	1450	
TP FPW560S2-□	60	Three-Phase 200	50	0.48	600	450	1300	-
		Three-Phase 220	60	0.43	500	380	1550	
			Three-Phase 230	60	0.44	500	380	
60	0.45							
TP FPW690A2-□J	90	Single-Phase 100	50	1.72	400	700	1250	25
			60	1.57		585	1500	
TP FPW690A2-□U	90	Single-Phase 110	60	1.54	400	585	1500	18
		Single-Phase 115		1.51				
TP FPW690C2-□J	85	Single-Phase 200	50	0.76	400	660	1250	6.0
			60	0.78		570	1450	
TP FPW690C2-□E	90	Single-Phase 220	50	0.82	400	700	1250	4.5
			60	0.73		605	1450	
		Single-Phase 230	50	0.81		700	1250	
			60	0.71		605	1450	
TP FPW690S2-□	90	Three-Phase 200	50	0.54	700	680	1300	-
		Three-Phase 220	60	0.51		570	1550	
			Three-Phase 230	60	0.49	700	570	

TP: Contains a built-in thermal protector. If a motor overheats for any reason, the thermal protector is opened and the motor stops. When the motor temperature drops, the thermal protector closes and the motor restarts. Be sure to turn the motor off before inspecting.

- Enter the gear ratio in the box (□) within the model name.
- The value for each specification is for a motor only.

General Specifications

Item	Specifications
Insulation Resistance	100 MΩ or more when 500 VDC megger is applied between the windings and the frame after rated motor operation under normal ambient temperature and humidity.
Dielectric Strength	Sufficient to withstand 1.5 kV at 50 Hz or 60 Hz applied between the windings and the frame for 1 minute after rated motor operation under normal ambient temperature and humidity.
Temperature Rise	80°C or less (Three-phase type: 70°C or less) measured by the resistance change method after rated motor operation under normal ambient temperature and humidity.
Insulation Class	Class B (130°C)
Overheat Protection	Built-in thermal protector (automatic return type) Operating temperature; open: 130°C±5°C, close: 82°C±15°C
Ambient Temperature	Single-Phase 100 VAC, Single-Phase 200 VAC, Three-Phase 200 VAC: -10°C~+50°C (nonfreezing) Single-Phase 110/115 VAC, Single-Phase 220/230 VAC, Three-Phase 220/230 VAC: -10°C~+40°C (nonfreezing)
Degree of Protection	IP67

Notes:

- Since these are special watertight, dust-resistant geared motors, the motor and gearhead sections cannot be disassembled.
- The capacitors for the motors are neither watertight nor dust-resistant.

Gearmotor – Torque Table

50 Hz

Unit = N·m

Model	Speed r/min																				
		500	417	300	250	200	167	120	100	83	60	50	42	30	25	20	17	15	12.5	10	8.3
	Gear Ratio	3	3.6	5	6	7.5	9	12.5	15	18	25	30	36	50	60	75	90	100	120	150	180
FPW425A2-□J	Rated Torque	0.50	0.60	0.83	1.0	1.2	1.5	2.1	2.5	3.0	3.7	4.5	5.4	6.8	8	8	8	8	8	8	8
	Starting Torque	0.32	0.38	0.53	0.63	0.79	0.95	1.3	1.6	1.9	2.4	2.8	3.4	4.3	5.1	6.4	7.7	8	8	8	8
FPW425C2-□J FPW425C2-□E (230 VAC)	Rated Torque	0.50	0.60	0.83	1.0	1.2	1.5	2.1	2.5	3.0	3.7	4.5	5.4	6.8	8	8	8	8	8	8	8
	Starting Torque	0.29	0.35	0.49	0.58	0.73	0.87	1.2	1.5	1.7	2.2	2.6	3.2	4.0	4.8	5.9	7.1	7.9	8	8	8
FPW425C2-□E (220 VAC)	Rated Torque	0.50	0.60	0.83	1.0	1.2	1.5	2.1	2.5	3.0	3.7	4.5	5.4	6.8	8	8	8	8	8	8	8
	Starting Torque	0.27	0.32	0.45	0.53	0.67	0.80	1.1	1.3	1.6	2.0	2.4	2.9	3.6	4.4	5.4	6.5	7.3	8	8	8
FPW425S2-□	Rated Torque	0.46	0.55	0.77	0.92	1.2	1.4	1.9	2.3	2.8	3.5	4.2	5.0	6.3	7.5	8	8	8	8	8	8
	Starting Torque																				
FPW540A2-□J FPW540C2-□J FPW540C2-□E (220 VAC)	Rated Torque	0.77	0.92	1.3	1.5	1.9	2.3	3.2	3.8	4.6	5.7	6.9	8.3	10	10	10	10	10	10	10	10
	Starting Torque	0.49	0.58	0.81	0.97	1.2	1.5	2.0	2.4	2.9	3.7	4.4	5.3	6.6	7.9	9.9	10	10	10	10	10
FPW540C2-□E (230 VAC)	Rated Torque	0.73	0.87	1.2	1.5	1.8	2.2	3.0	3.6	4.4	5.5	6.6	7.9	9.9	10	10	10	10	10	10	10
	Starting Torque	0.49	0.58	0.81	0.97	1.2	1.5	2.0	2.4	2.9	3.7	4.4	5.3	6.6	7.9	9.9	10	10	10	10	10
FPW540S2-□	Rated Torque	0.73	0.87	1.2	1.5	1.8	2.2	3.0	3.6	4.4	5.5	6.6	7.9	9.9	10	10	10	10	10	10	10
	Starting Torque																				
FPW560A2-□J FPW560C2-□J	Rated Torque	1.2	1.4	2.0	2.4	3.0	3.6	4.5	5.4	6.4	8.1	9.7	11.6	15	15	15	15	15	15	15	15
	Starting Torque	0.73	0.87	1.2	1.5	1.8	2.2	2.7	3.3	3.9	5.0	5.9	7.1	9.9	11.9	13.3	15	15	15	15	15
FPW560C2-□E	Rated Torque	1.0	1.3	1.7	2.1	2.6	3.1	3.9	4.7	5.7	7.1	8.5	10.2	14.2	15	15	15	15	15	15	15
	Starting Torque	0.73	0.87	1.2	1.5	1.8	2.2	2.7	3.3	3.9	5.0	5.9	7.1	9.9	11.9	13.3	15	15	15	15	15
FPW560S2-□	Rated Torque	1.1	1.3	1.8	2.2	2.7	3.3	4.1	4.9	5.9	7.4	8.9	10.7	14.9	15	15	15	15	15	15	15
	Starting Torque																				
FPW690A2-□J FPW690C2-□E	Rated Torque	1.7	2.0	2.8	3.4	4.3	5.1	6.4	7.7	9.2	12.8	15.3	18.4	23.1	27.7	30	30	30	30	30	30
	Starting Torque	0.97	1.2	1.6	1.9	2.4	2.9	3.7	4.4	5.3	7.3	8.8	10.5	13.2	15.8	19.8	23.8	26.4	30	30	30
FPW690C2-□J	Rated Torque	1.6	1.9	2.7	3.2	4.0	4.8	6.0	7.2	8.7	12.0	14.5	17.3	21.8	26.1	30	30	30	30	30	30
	Starting Torque	0.97	1.2	1.6	1.9	2.4	2.9	3.7	4.4	5.3	7.3	8.8	10.5	13.2	15.8	19.8	23.8	26.4	30	30	30
FPW690S2-□	Rated Torque	1.7	2.0	2.8	3.3	4.1	5.0	6.2	7.4	8.9	12.4	14.9	17.9	22.4	26.9	30	30	30	30	30	30
	Starting Torque																				

- Enter the gear ratio in the box (□) within the model name.
- The speed is calculated by dividing the motor's synchronous speed (50 Hz: 1500 r/min, 60 Hz: 1800 r/min) by the gear ratio.
The actual speed is 2 - 20% less than the displayed value, depending on the size of the load.

Model	Speed r/min	600	500	360	300	240	200	144	120	100	72	60	50	36	30	24	20	18	15	12	10
	Gear Ratio	3	3.6	5	6	7.5	9	12.5	15	18	25	30	36	50	60	75	90	100	120	150	180
FPW425A2 -□J FPW425A2 -□U FPW425C2 -□J FPW425C2 -□E (230 VAC)	Rated Torque	0.41	0.50	0.69	0.83	1.0	1.2	1.7	2.1	2.5	3.1	3.7	4.5	5.6	6.7	8	8	8	8	8	8
	Starting Torque	0.29	0.35	0.49	0.58	0.73	0.87	1.2	1.5	1.7	2.2	2.6	3.2	4.0	4.8	5.9	7.1	7.9	8	8	8
FPW425C2 -□E (220 VAC)	Rated Torque	0.41	0.50	0.69	0.83	1.0	1.2	1.7	2.1	2.5	3.1	3.7	4.5	5.6	6.7	8	8	8	8	8	8
	Starting Torque	0.27	0.32	0.45	0.53	0.67	0.80	1.1	1.3	1.6	2.0	2.4	2.9	3.6	4.4	5.4	6.5	7.3	8	8	8
FPW425S2 -□	Rated Torque	0.39	0.47	0.65	0.78	0.97	1.2	1.6	1.9	2.3	2.9	3.5	4.2	5.3	6.3	7.9	8	8	8	8	8
	Starting Torque	0.39	0.47	0.65	0.78	0.97	1.2	1.6	1.9	2.3	2.9	3.5	4.2	5.3	6.3	7.9	8	8	8	8	8
FPW540A2 -□J FPW540A2 -□U FPW540C2 -□J FPW540C2 -□E	Rated Torque	0.63	0.76	1.1	1.3	1.6	1.9	2.6	3.2	3.8	4.7	5.7	6.8	8.6	10	10	10	10	10	10	10
	Starting Torque	0.49	0.58	0.81	0.97	1.2	1.5	2.0	2.4	2.9	3.7	4.4	5.3	6.6	7.9	9.9	10	10	10	10	10
FPW540S2 -□	Rated Torque	0.63	0.76	1.1	1.3	1.6	1.9	2.6	3.2	3.8	4.7	5.7	6.8	8.6	10	10	10	10	10	10	10
	Starting Torque	0.63	0.76	1.1	1.3	1.6	1.9	2.6	3.2	3.8	4.7	5.7	6.8	8.6	10	10	10	10	10	10	10
FPW560A2 -□J FPW560A2 -□U FPW560C2 -□J FPW560C2 -□E	Rated Torque	0.98	1.2	1.6	2.0	2.5	3.0	3.7	4.4	5.3	6.7	8.0	9.6	13.4	15	15	15	15	15	15	15
	Starting Torque	0.73	0.87	1.2	1.5	1.8	2.2	2.7	3.3	3.9	5.0	5.9	7.1	9.9	11.9	13.3	15	15	15	15	15
FPW560S2 -□	Rated Torque	0.92	1.1	1.5	1.8	2.3	2.8	3.5	4.2	5.0	6.3	7.5	9.0	12.5	15	15	15	15	15	15	15
	Starting Torque	0.92	1.1	1.5	1.8	2.3	2.8	3.5	4.2	5.0	6.3	7.5	9.0	12.5	15	15	15	15	15	15	15
FPW690A2 -□J FPW690A2 -□U	Rated Torque	1.4	1.7	2.4	2.8	3.6	4.3	5.3	6.4	7.7	10.7	12.8	15.4	19.3	23.2	29.0	30	30	30	30	30
	Starting Torque	0.97	1.2	1.6	1.9	2.4	2.9	3.7	4.4	5.3	7.3	8.8	10.5	13.2	15.8	19.8	23.8	26.4	30	30	30
FPW690C2 -□J	Rated Torque	1.4	1.7	2.3	2.8	3.5	4.2	5.2	6.2	7.5	10.4	12.5	15.0	18.8	22.6	28.2	30	30	30	30	30
	Starting Torque	0.97	1.2	1.6	1.9	2.4	2.9	3.7	4.4	5.3	7.3	8.8	10.5	13.2	15.8	19.8	23.8	26.4	30	30	30
FPW690C2 -□E	Rated Torque	1.5	1.8	2.5	2.9	3.7	4.4	5.5	6.6	7.9	11.0	13.2	15.9	20.0	24.0	29.9	30	30	30	30	30
	Starting Torque	0.97	1.2	1.6	1.9	2.4	2.9	3.7	4.4	5.3	7.3	8.8	10.5	13.2	15.8	19.8	23.8	26.4	30	30	30
FPW690S2 -□	Rated Torque	1.4	1.7	2.3	2.8	3.5	4.2	5.2	6.2	7.5	10.4	12.5	15.0	18.8	22.6	28.2	30	30	30	30	30
	Starting Torque	1.4	1.7	2.3	2.8	3.5	4.2	5.2	6.2	7.5	10.4	12.5	15.0	18.8	22.6	28.2	30	30	30	30	30

- Enter the gear ratio in the box (□) within the model name.
- The speed is calculated by dividing the motor's synchronous speed (50 Hz: 1500 r/min, 60 Hz: 1800 r/min) by the gear ratio.
The actual speed is 2 - 20% less than the displayed value, depending on the size of the load.

Permissible Overhung Load and Permissible Thrust Load

Model	Gear Ratio	Permissible Overhung Load		Permissible Thrust Load N
		10 mm from Shaft End N	20 mm from Shaft End N	
FPW425 Type	3~18	100	150	50
	25~180	200	300	
FPW540 Type	3~18	250	350	100
	25~180	300	450	
FPW560 Type	3~9	400	500	150
	12.5~18	450	600	
	25~180	500	700	
FPW690 Type	3~9	550	800	200
	12.5~180	650	1000	

Permissible Load Inertia J

Model \ Gear Ratio	3	3.6	5	6	7.5	9	12.5	15	18	25	30	36	50	60	75	90	100	120	150	180
FPW425 Type	2.79	4.02	7.75	11.2	17.4	25.1	48.4	69.8	100	194	279	402	775	775	775	775	775	775	775	775
FPW540 Type	6.75	9.72	18.8	27	42.2	60.8	117	169	243	469	675	972	1875	1875	1875	1875	1875	1875	1875	1875
FPW560 Type	9.9	14.3	27.5	39.6	61.9	89.1	172	248	356	688	990	1426	2750	2750	2750	2750	2750	2750	2750	2750
FPW690 Type	18	25.9	50	72	113	162	313	450	648	1250	1800	2592	5000	5000	5000	5000	5000	5000	5000	5000

Dimensions (Unit = mm)

● Mounting screws are included with the motor. Dimensions for screws → Page 9

● Enter the gear ratio in the box (□) within the model name.

● 25 W

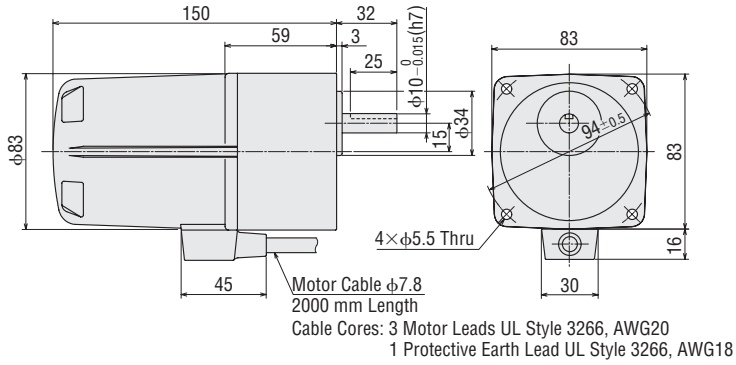
◇ Geared Motors

FPW425A2-□J, FPW425A2-□U, FPW425C2-□J, FPW425C2-□E, FPW425S2-□

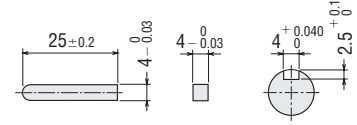
Motor: FPW425A2-□, FPW425C2-□, FPW425S2-□

Mass: 3.0 kg

CAD A226



◇ Key and Key Slot (Included)



● 40 W

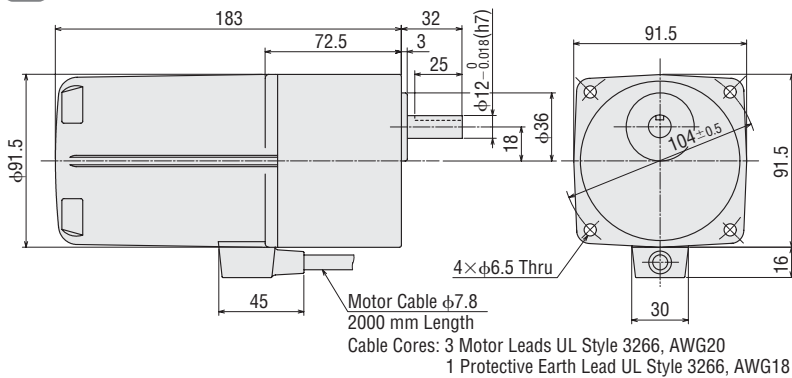
◇ Geared Motors

FPW540A2-□J, FPW540A2-□U, FPW540C2-□J, FPW540C2-□E, FPW540S2-□

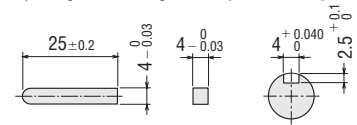
Motor: FPW540A2-□, FPW540C2-□, FPW540S2-□

Mass: 4.0 kg

CAD A227



◇ Key and Key Slot (Included)



● 60 W

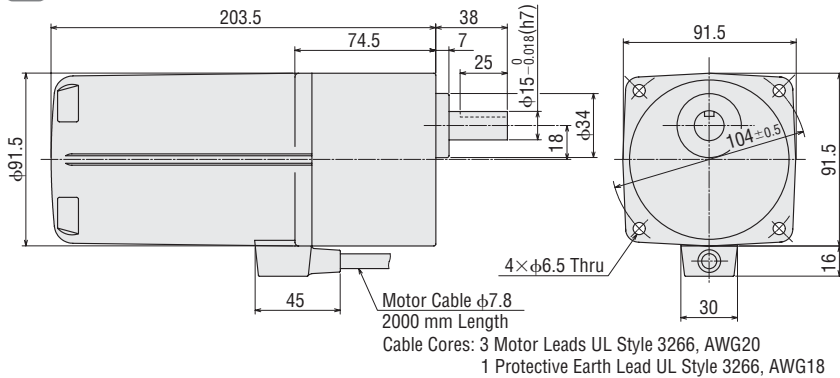
◇ Geared Motors

FPW560A2-□J, FPW560A2-□U, FPW560C2-□J, FPW560C2-□E, FPW560S2-□

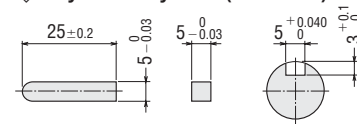
Motor: FPW560A2-□, FPW560C2-□, FPW560S2-□

Mass: 5.0 kg

CAD A228



◇ Key and Key Slot (Included)



● 90 W

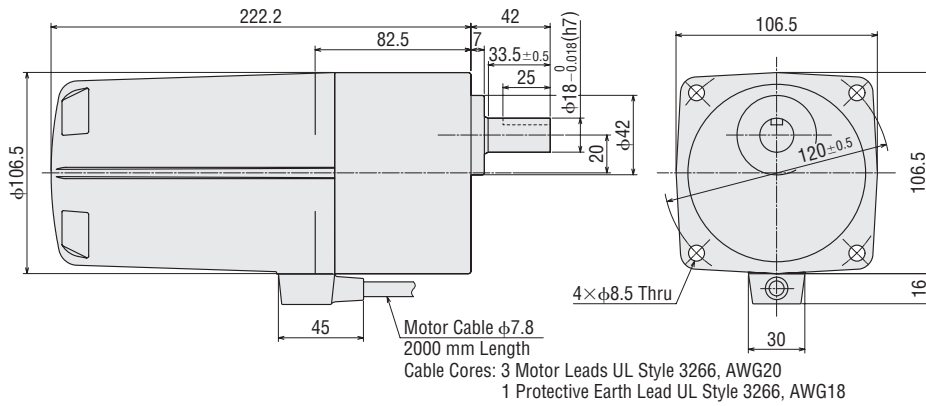
◇ Geared Motors

FPW690A2-□J, FPW690A2-□U, FPW690C2-□J, FPW690C2-□E, FPW690S2-□

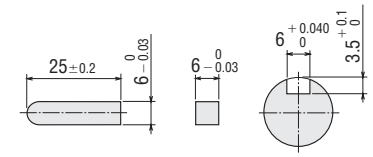
Motor: FPW690A2-□, FPW690C2-□, FPW690S2-□

Mass: 7.5 kg

CAD A256



◇ Key and Key Slot (Included)



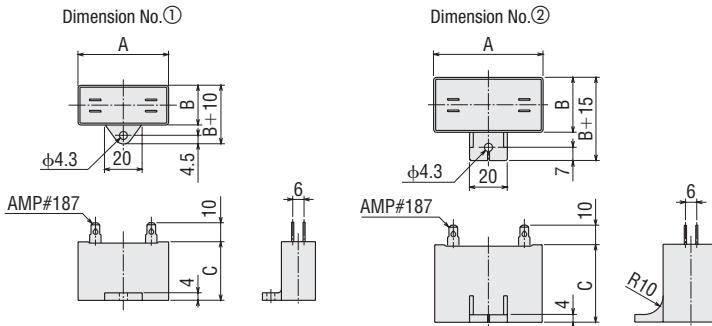
◇ Screws (Included) (Material: Stainless Steel)



	Length: L (mm)	Screw Size
FPW425 Type	80	M5 P0.8
FPW540 Type	90	M6 P1.0
FPW560 Type	90	M6 P1.0
FPW690 Type	100	M8 P1.25

● 4 flat washers and 4 hexagonal nuts are provided with the screws.

◇ Capacitor (Included with single-phase motors)



◇ Capacitor Dimensions (mm)

Model	Capacitor Model	A	B	C	Mass (g)	Dimension No.
FPW425A2 -□J	CH80CFAUL2	48	21	31	45	①
FPW425A2 -□U	CH65CFAUL2	48	19	29	40	
FPW425C2 -□J	CH20BFAUL	48	19	29	35	
FPW425C2 -□E	CH15BFAUL	38	21	31	35	
FPW540A2 -□J	CH110CFAUL2	58	21	31	50	①
FPW540A2 -□U	CH90CFAUL2	48	22.5	31.5	45	
FPW540C2 -□J	CH30BFAUL	58	21	31	50	
FPW540C2 -□E	CH23BFAUL	48	21	31	40	②
FPW560A2 -□J	CH180CFAUL2	58	29	41	95	
FPW560A2 -□U	CH120CFAUL2	58	22	35	60	
FPW560C2 -□J	CH40BFAUL	58	23.5	37	70	
FPW560C2 -□E	CH30BFAUL	58	21	31	50	①
FPW690A2 -□J	CH250CFAUL2	58	35	50	140	②
FPW690A2 -□U	CH180CFAUL2	58	29	41	95	
FPW690C2 -□J	CH60BFAUL	58	29	41	85	
FPW690C2 -□E	CH45BFAUL	58	23.5	37	73	

● A capacitor cap is included with a capacitor.

● Enter the gear ratio in the box (□) within the model name.

Connection and Operation

- The direction of motor rotation is as viewed from the shaft end of the motor. CW represents the clockwise direction, while CCW represents the counterclockwise direction.
- The connection method varies with the output power or the gear ratio.
- For added safety, it is advisable to use a ground fault interrupt circuit in situations where the motor is likely to get wet during operation.

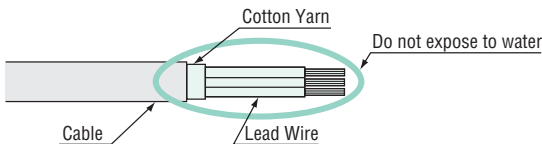
	Single-Phase 100/110/115 VAC, Single-Phase 200/220/230 VAC		Three-Phase 200/220/230 VAC	
25 W 40 W	Gear Ratio 3~18 50~180	Gear Ratio 25~36	Gear Ratio 3~18 50~180	Gear Ratio 25~36
60 W	Gear Ratio 3~9 25~60	Gear Ratio 12.5~18 75~180	Gear Ratio 3~9 25~60	Gear Ratio 12.5~18 75~180
90 W	Gear Ratio 3~9 50~180	Gear Ratio 12.5~36	Gear Ratio 3~9 50~180	Gear Ratio 12.5~36
	<p>Clockwise</p>	<p>Clockwise</p>	<p>Clockwise</p>	<p>Clockwise</p>
	<p>Counterclockwise</p>	<p>Counterclockwise</p>	<p>Counterclockwise</p> <p>To rotate the motor in a counterclockwise direction, change any two connections between R, S and T.</p>	<p>Counterclockwise</p> <p>To rotate the motor in a counterclockwise direction, change any two connections between R, S and T.</p>

Note:

- Change the direction of single-phase motor rotation only after bringing the motor to a stop. If an attempt is made to change the direction of rotation while the motor is rotating, motor may ignore reversing command or change its direction of rotation after some delay.

Wiring precautions:

The terminals of the cable are not waterproofed. Be sure not to splash water on the cable terminal, otherwise water could seep inside the motor through the lead wire or the fabric covering, resulting in damage to the motor.



Accessories

Power Relay Box for Watertight Type (RoHS)

This power relay box connects the motor cable and the extension cable. Use this relay box when extending the motor cable of **FPW** Series.

Model: TB4-0608 (4-Terminal Type)

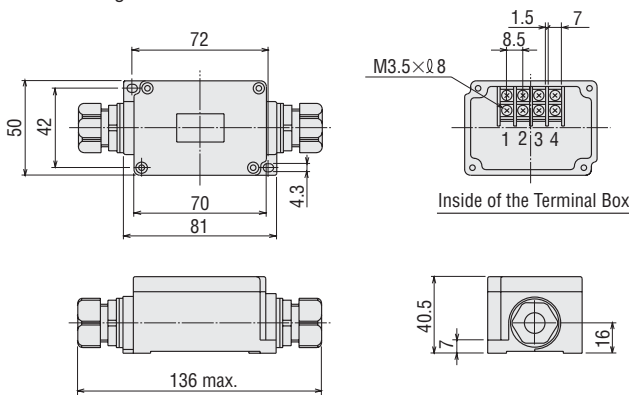


- The relay box conforms to the protection level IP65 only when used with a watertight extension cable for an **FPW** Series motor. The screws for the cover on the sealed connector and relay box should be adjusted to the torque shown below.

Sealed connector 1.0~1.5 N·m
Cover of power relay box 0.54~0.66 N·m

Dimensions (Unit = mm)

Mass: 150 g CAD A241

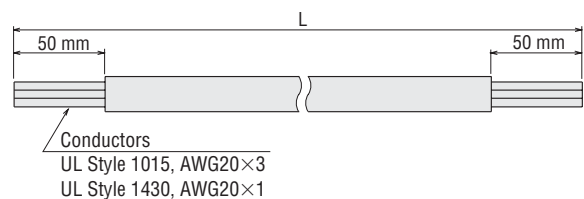


- Applicable cable diameter: $\phi 6.5 \sim \phi 8.5$

Extension Cable for Watertight Type (RoHS)

Use this cable to extend the wiring length of the **FPW** Series motors. Use with the power relay box for watertight. An extension of 5 m and 10 m is possible.

Model	Cable Length: L (m)
CC05AC43P	5
CC10AC43P	10



Specifications

Conductor construction: Refer to the dimension on the right
Finished outer diameter: $\phi 7.8$ mm
Outer casing: Heat-resistant vinyl chloride

Brake Pack for Standard AC Motors SB50W (RoHS)

The **SB50W** provides instantaneous stop, forward/reverse operation, electromagnetic brake control and thermal protector open detection functions integrated into one unit. These brake packs can sense when the thermal protector is opened, further ensuring the safety of your equipment.

- For further information on the product, please contact your nearest Oriental Motor.



Oriental motor

This product is manufactured at a plant certified with the international standards **ISO 9001** (for quality assurance) and **ISO 14001** (for systems of environmental management).

Specifications are subject to change without notice.
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